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PATENT  
Attorney Docket No.: 019957-013211US  
Client Ref. No.: 100/162

BOX DIVISIONAL PATENT APPLICATION  
U.S. Patent and Trademark Office  
P. O. Box 2327  
Arlington, VA 22202

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of:

Michel Gilbert *et al.*

Application No.: Unknown

Filed: Herewith

For: LIPOPOLYSACCHARIDE  $\alpha$ -2,3  
SIALYLTRANSFERASE OF  
CAMPYLOBACTER JEJUNI AND ITS  
USES

Examiner: Unassigned

Art Unit: Unassigned

INFORMATION DISCLOSURE  
STATEMENT UNDER 37 CFR §1.97 and  
§1.98

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Sir:

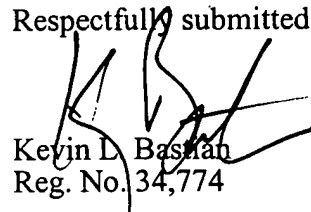
The references cited on attached form PTO/SB/08A and PTO/SB/08B are being called to the attention of the Examiner. In accordance with 37 CFR §1.98(d), copies of the references can be found in Application No. 09/272,960, filed March 18, 1999 (Attorney Docket No. 019957-013210US). Also enclosed is a copy of the International Search Report for the corresponding PCT application. It is respectfully requested that the cited references be expressly considered during the prosecution of this application, and the references be made of record therein and appear among the "references cited" on any patent to issue therefrom.

As provided for by 37 CFR 1.97(g) and (h), no representation is being made that a search has been conducted or that this statement encompasses all the possible relevant

information, and no inference should be made that the information and references are cited are, or are considered to be material to patentability because they are in this statement. No inference should be made that the information and references cited are prior art merely because they are in this statement.

Applicants believe that no fee is required for submission of this statement, since it is being submitted prior to the mailing of the first Office Action. However, if a fee is required, the Commissioner is authorized to deduct such fee from the undersigned's Deposit Account No. 20-1430. Please deduct any additional fees from, or credit any overpayment to, the above-noted Deposit Account.

Respectfully submitted,



Kevin L. Bastian  
Reg. No. 34,774

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Substitute for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				<b>Complete if Known</b>	
				Application Number	Unknown
				Filing Date	Herewith
				First Named Inventor	Gilbert, Michel, <i>et al.</i>
				Group Art Unit	Unassigned
				Examiner Name	Unassigned
Sheet	1	of	5	Attorney Docket Number	019957-013211US

U.S. PATENT DOCUMENTS						
Examiner Initials *	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
	AA	US 5,352,670		Venot, <i>et al.</i>	10-04-1994	
	AB	US 5,374,541		Wong, <i>et al.</i>	12-20-1994	
	AC	US 5,545,553		Gotschlich	08-13-1996	
	AD	US 5,998,138		Stonnet, <i>et al.</i>	12-1999	
	AE	US 5,691,138		Guesdon, <i>et al.</i>	11-1997	

FOREIGN PATENT DOCUMENTS								
Examiner Initials *	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
	BA	EP	173149A		Hoechst AG			
	BB	PCT	WO 96/32491			10-17-1996		
	BC	PCT	WO 97/47749			12-18-1997		
	BD	PCT	WO 98/31826			07-1998		

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		Application Number	Unknown
		Filing Date	Herewith
		First Named Inventor	Gilbert, Michel, <i>et al.</i>
		Group Art Unit	Unassigned
		Examiner Name	Unassigned
		Attorney Docket Number	019957-013211US
Sheet	2	of	5

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	1	Aoki et al., "Analysis of the substrate binding sites of human galactosyltransferase by protein engineering," <i>EMBO J.</i> 9:3171-3178 (1990).	
	2	Aspinall et al., "Lipopolysaccharides of <i>Campylobacter jejuni</i> Serotype O:19: Structures of Core Oligosaccharide Regions from the Serostrain and Two Bacterial Isolates from Patients with the Guillain-Barre Syndrome," <i>Biochemistry</i> 33: 241-249 (1994).	
	3	Aspinall, et al. "Lipopolysaccharides of <i>Campylobacter jejuni</i> Serotype O:19: Structures of O Antigen Chains from the Serostrain and Two Bacterial Isolates from Patients with the Guillain-Barre Syndrome," <i>Biochemistry</i> 33: 250-255 (1994).	
	4	Bradbury, <i>et al. J. of Clinical Microbiol.</i> , (September 1985) Vol. 22(3), pages 339-346, (abstract only)	
	5	Chang, <i>et al. Glycobiology</i> , (May 1995) Vol. 5(3), pages 319-325.	
	6	Frosch et al., "Evidence for a common molecular origin of the capsule gene loci in Gram-negative bacteria expressing group II capsular polysaccharides," <i>Mol. Microbiol.</i> 5: 1251-1263 (1991).	
	7	Gilbert et al., "Cloning of the Lipooligosaccharide a-2-3-Sialyltransferase from the Bacterial Pathogens <i>Neisseria meningitidis</i> and <i>Neisseria gonorrhoeae</i> ," <i>J. Biol. Chem.</i> , 271:28271-28276 (1996).	
	8	Gilbert et al., "Characterization of a recombinant <i>Neisseria meningitidis</i> a-2,3-sialyltransferase and its acceptor specificity," <i>Eur. J. Biochem.</i> 249: 187-194 (1997)	
	9	Gibert, <i>et al.</i> "The Synthesis of Sialylated Oligosaccharides Using a CMP-Neu5Ac Synthetase/sialyltransferase Fusion" <i>Nature Biotechnology</i> (August 1998) Vol. 16, pages 769-772.	
	10	Gillam and Smith, "Site-Specific Mutagenesis Using Synthetic Oligodeoxyribonucleotide Primers: I. Optimum Conditions and Minimum Oligodeoxyribo-Nucleotide Length," <i>Gene</i> 8:81-97 (1979).	
	11	Guo, <i>et al. Applied Biochemistry and Biotechnology</i> , Oct-Nov 1997, Vol. 68 (1-2), pages 1-20.	
	12	Imai, <i>et al. Cytobios</i> , (1994) Vol. 78(313), pages 115-122 (abstract only)	

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				Application Number	Unknown
				Filing Date	Herewith
				First Named Inventor	Gilbert, Michel, et al.
				Group Art Unit	Unassigned
				Examiner Name	Unassigned
Sheet	3	of	5	Attorney Docket Number	019957-013211US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	13	Ito et al., <i>Pure Appl. Chem.</i> , "Synthesis of Bioactive sialosides," 65:753 (1993).	
	14	Jamieson, et al. <i>Comparative Biochemistry and Physiology</i> , (1993) Vol. 105(1), pages 29-33.	
	15	Kajihara et al., "A Novel a-2,6-Sialyltransferase: Transfer of Sialic Acid to Fucosyl and Sialyl Trisaccharides," <i>J. Org. Chem.</i> 61: 8632-8635	
	16	Kleene et al., "Expression of Soluble Active Human B1, 4 Galactosyltransferase in <i>Saccharomyces Cerevisiae</i> ," <i>Biochem. Biophys. Res. Commun.</i> 201:160-167 (1994).	
	17	Klohs, et al. <i>Cancer Res.</i> , (1979) Vol. 39(4), pages 1231-1238.	
	18	Korolik, et al. <i>Microbiology</i> , (November 1997) Vol. 143(pt11), pages 3481-3489.	
	19	Kuroki et al., " <i>Campylobacter jejuni</i> Strains from Patients with Guillain-Barre Syndrome Belong Mostly to Penner Serogroup 19 and Contain B-N-Acetylglucosamine Residues," <i>Ann Neurol</i> 33:243-247. (1993).	
	20	Mandrell, et al. <i>Immunobiology</i> , (1993) Vol. 187(3-5), pages 382-402.	
	21	Maskell, et al. <i>Mol. Microbiol.</i> , (1991) Vol. 5(5), pages 1013-1022, (abstract only)	
	22	Moran et al., "Molecular mimicry of host structures by bacterial lipopolysaccharides and its contribution to disease," <i>MS Immunol. Med. Microbiol.</i> 16:105-115 (1996).	
	23	Moran et al., "Molecular mimicry of host structures by lipopolysaccharides of <i>Campylobacter</i> and <i>Helicobacter</i> spp: implications in pathogenesis," <i>J. Endotoxin Res.</i> 3:521-531.	
	24	Nishiu et al., "Characterization of Rat N-Acetylglucosaminyltransferase I Expressed in <i>Escherichia coli</i> ," <i>Biosci. Biotech. Biochem.</i> 59 (9):1750-1752 (1995).	
	25	Parsons, et al. <i>Microbial Pathogenesis</i> , ( 1993) Vol. 14(4), pages 329-335.	

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				Group Art Unit	Unassigned
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	26	Preston et al., "The Lipooligosaccharides of Pathogenic Gram-Negative Bacteria," <i>Crit. Rev. Microbiol.</i> 22:139-180.	
	27	Rest, et al. <i>Microbial Pathogenesis</i> , (1995) Vol. 19(6), pages 379-390.	
	28	Reuter et al., "Sialic Acids Structure -- Analysis -- Metabolism -- Occurrence -- Recognition," <i>Biol. Chem. Hoppe-Seyler</i> 377:325-342	
	29	Roberts et al., "Generation of an antibody with enhanced <i>Nature</i> 328:731-734 (1987).	
	30	Ropper, "The Guillain-Barre Syndrome," <i>N. Engl. J. Med.</i> 326: 1130-1136.	
	31	Salloway, et al. <i>Infection Immunity</i> , (August 1996) Vol. 64(8), pages 2945-2949.	
	32	Smith, et al. <i>Microbial Pathogenesis</i> , (1995) Vol. 19(6), pages 365-377.	
	33	Steenbergen, et al. <i>Journal of Biochemistry</i> , (February 1998) Vol. 174(4), pages 1099-1108.	
	34	Skirrow, <i>Brit. Med. J.</i> "Campylobacter enteritis: a 'new' disease," 2:9-11 (1977).	
	35	Taylor, et al. <i>Antimicrobial Agents &amp; Chemotherapy</i> (December 1983), Vol. 24(6), pp. 930-935, (abstract only).	
	36	Taylor, et al. <i>Antimicrobial Agents and Chemotherapy</i> , (May 1981) Vol. 19(5), pages 831-835 (abstract only)	
	37	Varki, "Biological Roles of Oligosaccharides: all of the theories are correct," <i>Glycobiology</i> 3:97-130.	
	38	Vogel, et al. <i>Medical Microbiology and Immunology</i> , (October 1997) Vol. 186(2-3), pages 159-166.	

Examiner Signature	Date Considered
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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet **5** of **5**

### Complete if Known

Application Number	Unknown
Filing Date	Herewith
First Named Inventor	Gilbert, Michel, <i>et al.</i>
Group Art Unit	Unassigned
Examiner Name	Unassigned
Attorney Docket Number	019957-013211US

### OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

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	39	Weiser, <i>et al. Critical Reviews in Clinical Laboratory Sciences</i> , (June 1981) Vol. 14(3), pages 189-239.	
	40	Weisgerber <i>et al.</i> , "Complete nucleotide and deduced protein sequence of CMP-neuAc: poly-a-2,8 sialosyl sialyltransferase of <i>Escherichia coli</i> K1," <i>Glycobiol.</i> 1:357-365 (1991).	
	41	Williams <i>et al.</i> , "Large-scale expression of recombinant sialyltransferases and comparison of their kinetic properties with native enzymes," <i>Glycoconjugate J.</i> 12: 755-761.	
	42	Wakarchuk <i>et al.</i> , "Mutational and crystallographic analyses of the active site residues of the <i>Bacillus circulans</i> xylanase," <i>Protein Sci.</i> 3:467-475	
	43	Yamamoto <i>et al.</i> , "Purification and Characterization of a Marine Bacterial B-Galactoside a2,6-Sialyltransferase from <i>Photobacterium damsela</i> JT0160," <i>J. Biochem.</i> 120:104-110 (1996).	
	44	Yamamoto, <i>et al. J. of Biochemistry</i> , (January 1998) Vol. 123(1), pages 94-100.	
	45	Yamashiro, <i>et al. Glycoconjugate Journal</i> , (December 1995) Vol. 12(6), pages 894-900.	

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